(SHUBHAM I)

(Unit-3) ▷ (1) Discrete

B. TECH → IInd YEAR

Sets (Partially Ordered Set):

A partially ordered set consists of a set with a binary relation which is reflexive, antisymmetric and transitive. i.e.,

(i) $aRa \forall a \in S$ (Reflexivity)

(ii) If aRb and bRa, then $a = b$. (Antisymmetric)

(iii) If aRb and bRc, then aRc. (Transitive)

ex: Let the set $S = \{1, 2, 3\}$ and the operation is $\leq$

The relations will be.

$\{(1,1), (2,2), (3,3), (1,2), (1,3), (2,3)\}$

This relation R is reflexive as $\{(1,1), (2,2), (3,3)\} \in R$

The relation R is antisymmetric, as